Database Management and Database Design
INFO6210 Summer 2, 2020

Online Commerce Solution – Retail & Healthcare

FINAL ERD Design Document

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Design Changes:
Comparison between Initial and Final ERD design:

Feedback on Initial ERD by Professor:
1. CustomerID in CustomerAddress should not be a PK attribute. AddressID alone is sufficient to function as the PK.
2. Since AppointmentDetails is connected to Customer_Base, there is no need to connect Order_Master to Customer_Base too.
3. CustomerID should not be a PK attribute in Customer_Card_detail. Card_Number alone is sufficient to function as the PK.
4. The relationship between Order_Master and Order_Shipment_Master should be one-to-one. Does an order have only one order shipment master because the PK of Order_Shipment_Master is Order_ID?
5. Order_ID should not be a PK attribute in shipmentDetials. Shipment_ID alone is sufficient to function as the PK.

Changes Made in Accordance with Feedback:
1. In Customer_Address Entity, the CustomerID is removed from PK as it is FK in that table.

2. Customer can make an appointment for which Appointment_Details is connected to Customer_Base, Once the appointment is fixed, the Order_Master entity is related for using Invoice_Master and Payment Entities.

3. In Customer_Card_Detail Entity, the CustomerID is removed from PK as it is FK in that table.

4. Yes, An Order has only one record in Order_Shipment_Master. We have changed the relationship between Order_Master and Order_Shipment_Master as One-To-One.

5. In Shipment_Details Entity, the OrderID is removed from PK as it is FK in that table.

Other Changes:

1. The cardinality between Order_Master and Appointment_Details has been changed from One-to-Many to One-To-One.
2. The cardinality between Prescription_Master and Order_Master is changed from One-to-Many to One-to-One.
3. For Invoice_Master and Payment_Master, the cardinality is changed to One-To-One from One-to-Many.
4. The cardinality between Order_Master and Order_Shipment_Master is changed from One-to-Many to One-to-One.
5. For Customer_Base and Customer_Card_Detail, the cardinality is changed to Zero-To-Many from One-to-Many.
6. For The following entities the relationship has been changed from Identifying to Non-Identifying:

a. Customer_Base and Customer_Address

b. Customer_Base and Customer_Card_Detail

c. Order_Shipment_Master and Shipment_Detail

7. Excluded unused attributes in entities.

Kindly refer the FINAL ERD Design Image Below:

Customer_Base
- Customer_ID INT
- Customer_First_Name VARCHAR(45)
- Customer_Last_Name VARCHAR(45)
- Birth_Date DATE
- Gender VARCHAR(1)
- Mail_ID VARCHAR(45)
- Phone_Number VARCHAR(45)
- User_Name VARCHAR(45)
- Password VARCHAR(45)
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Customer_Address
- Address_ID INT
- Customer_ID INT
- Address_Type VARCHAR(45)
- Flat_No VARCHAR(45)
- Street_Name VARCHAR(45)
- City VARCHAR(45)
- Pin_Code INT
- Create_Date DATETIME
- Proc_date DATETIME
- Indexes

Commodity_Master
- Product_ID INT
- Product_Category VARCHAR(45)
- Brand_Name VARCHAR(45)
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Stock_Master
- Seller_ID INT
- Product_ID INT
- Seller_Name VARCHAR(45)
- Total_Stock INT
- Available_Stock INT
- Indexes

Commodity_Details
- Product_ID INT
- Product_Title VARCHAR(45)
- Product_Description VARCHAR(45)
- Product_Specification VARCHAR(45)
- Product_Unit_Price DOUBLE
- Indexes

Cart_Master
- Customer_ID INT
- Product_ID INT
- Cart_Quantity INT
- Cart_Status VARCHAR(45)
- Order_Flag TINYINT
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Appointment_Details
- Appointment_ID INT
- Customer_ID INT
- Lab_ID INT
- Appointment_Date DATETIME
- Sample_Status VARCHAR(45)
- Report_Status VARCHAR(45)
- Indexes

Prescription_Master
- Prescription_ID INT
- Customer_ID INT
- Doctor_ID INT
- Prescription_File_Type VARCHAR(45)
- File_Upload_Flag TINYINT
- Indexes

Customer_Card_Detail
- Card_Number INT
- Customer_ID INT
- Valid_From INT
- Valid_To INT
- Name_On_Card VARCHAR(45)
- Card_Type VARCHAR(45)
- Indexes

Order_Master
- Order_ID INT
- Customer_ID INT
- Payment_Mode VARCHAR(45)
- Transaction_ID INT
- Order_Date DATE
- Order_Status VARCHAR(45)
- Prescription_ID INT
- Appointment_ID INT
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Invoice_Master
- Invoice_ID INT
- Order_ID INT
- Invoice_Date DATETIME
- Invoice_Amount DOUBLE
- Invoice_Status VARCHAR(45)
- Indexes

Invoice_Details
- Invoice_Detail_ID INT
- Invoice_ID INT
- Seller_ID INT
- Invoice_Item VARCHAR(45)
- Item_Amount DOUBLE
- Tax_Amount DOUBLE
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Order_Details
- Order_ID INT
- Product_ID INT
- Seller_ID INT
- Price_Per_Unit DOUBLE
- Quantity INT
- Tax_Amount DOUBLE
- Total_Price DOUBLE
- Invoice_Status VARCHAR(45)
- Create_Date DATETIME
- Processing_Date DATETIME
- Indexes

Payment_Master
- Payment_ID INT
- Invoice_ID INT
- Transaction_ID VARCHAR(45)
- Payment_Date DATETIME
- Payment_Amount DOUBLE
- Payment_Status VARCHAR(45)
- Indexes

Order_Shipment_Master
- Order_ID INT
- Customer_ID INT
- Address_ID VARCHAR(45)
- Expected_Delivery_Date DATETIME
- Actual_Delivery_Date DATETIME
- Delivery_Status VARCHAR(45)
- Indexes

Shipment_Details
- Shipment_ID INT
- Order_ID INT
- Shipment_Charge DOUBLE
- Shipment_Status VARCHAR(45)
- Shipment_Delivery_Date DATETIME
- Address_ID VARCHAR(45)
- Shipped_Date DATETIME
- Indexes